

Complete Summary

GUIDELINE TITLE

ACR Appropriateness Criteria™ for suspected abdominal abscess.

BIBLIOGRAPHIC SOURCE(S)

Saini S, Ralls PW, Balfe DM, Bree RL, DiSantis DJ, Glick SN, Levine MS, Megibow AJ, Shuman WP, Greene FL, Laine LA, Lillemoe K, Brown M, Berland L. Suspected abdominal abscess. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun; 215(Suppl): 173-9. [21 references]

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SCOPE

DISEASE/CONDITION(S)

Abdominal abscess

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Gastroenterology
Internal Medicine
Radiology

INTENDED USERS

Health Plans
Hospitals
Managed Care Organizations
Physicians
Utilization Management

GUIDELINE OBJECTIVE(S)

To evaluate the appropriateness of initial radiologic examinations for suspected abdominal abscess

TARGET POPULATION

Patients suspected of an abdominal abscess.

This guideline is not intended to assess the use of imaging modalities in patients with pancreatitis, diverticulitis, Crohn's disease, or other inflammatory bowel disorders, or in patients with suspected genitourinary conditions.

INTERVENTIONS AND PRACTICES CONSIDERED

1. Computed tomography
 - Computed tomography with intravenous contrast
 - Computed tomography without intravenous contrast
2. Ultrasound
3. Radiography
 - Plain films
 - Upper gastrointestinal-small bowel follow through
 - Contrast enema
 - Barium enema
4. Nuclear medicine
 - Gallium
 - White blood cell (Tc or In)
5. Magnetic resonance
 - Magnetic resonance imaging without contrast
 - Magnetic resonance imaging with contrast
6. Interventional
 - Angiography

MAJOR OUTCOMES CONSIDERED

Utility of radiologic examinations in differential diagnosis

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The guideline developer performed literature searches of recent peer-reviewed medical journals, primarily using the National Library of Medicine's MEDLINE database. The developer identified and collected the major applicable articles.

NUMBER OF SOURCE DOCUMENTS

The total number of source documents identified as the result of the literature search is not known.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Delphi Method)
Weighting According to a Rating Scheme (Scheme Not Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

One or two topic leaders within a panel assume the responsibility of developing an evidence table for each clinical condition, based on analysis of the current literature. These tables serve as a basis for developing a narrative specific to each clinical condition.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Delphi)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Since data available from existing scientific studies are usually insufficient for meta-analysis, broad-based consensus techniques are needed to reach agreement in the formulation of the Appropriateness Criteria. Serial surveys are conducted by distributing questionnaires to consolidate expert opinions within each panel. These questionnaires are distributed to the participants along with the evidence table and narrative as developed by the topic leader(s). Questionnaires are completed by the participants in their own professional setting without influence of the other members. Voting is conducted using a scoring system from 1-9, indicating the least to the most appropriate imaging examination or therapeutic procedure. The survey results are collected, tabulated in anonymous fashion, and redistributed after each round. A maximum of three rounds is conducted and opinions are unified to the highest degree possible. Eighty (80) percent agreement is considered a consensus. If consensus cannot be reached by this method, the panel is convened and group consensus techniques are utilized. The strengths and

weaknesses of each test or procedure are discussed and consensus reached whenever possible.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria and the Chair of the ACR Board of Chancellors.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

ACR Appropriateness Criteria™

Clinical Condition: Suspected Abdominal Abscess

Variant 1: Postoperative patient with fever.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed Tomography		
Computed tomography with intravenous contrast	8	
Computed tomography without intravenous contrast	6	Intravenous contrast is preferred. However, if it is contraindicated, the study may still be of value.
Ultrasound	6	
Radiography		
Plain films	6	
Upper gastrointestinal-	4	Appropriate if concern for

small bowel follow through		anastomotic leak - should use water-soluble agent.
Contrast enema	4	Appropriate if concern for anastomotic leak - should use water-soluble agent.
Nuclear Medicine		
Gallium	4	
White blood cell (Tc or In)	4	
Magnetic Resonance		
Magnetic resonance imaging without contrast	2	
Magnetic resonance imaging with contrast	2	
Interventional		
Angiography	2	
<p align="center"><u>Appropriateness Criteria Scale</u></p> <p align="center">1 2 3 4 5 6 7 8 9</p> <p align="center">1=Least appropriate 9=Most appropriate</p>		

Variant 2: Postoperative patient with persistent fever and no abscess seen on CT scan within the last 7 days.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Ultrasound	6	
Computed Tomography		
Computed tomography with intravenous contrast	6	
Computed tomography without intravenous contrast	4	
Nuclear Medicine		
White blood cell (Tc or In)	6	
Gallium	4	

Radiography		
Plain films	6	
Upper gastrointestinal - small bowel follow through	2	
Contrast enema	2	
Magnetic Resonance		
Magnetic resonance imaging without contrast	2	
Magnetic resonance imaging with contrast	2	
Interventional		
Angiography	2	
<u>Appropriateness Criteria Scale</u> 1 2 3 4 5 6 7 8 9 1=Least appropriate 9=Most appropriate		

Variant 3: Patient presenting with fever, no recent operations, no localizing signs.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed Tomography		
Computed tomography with intravenous contrast	8	
Computed tomography without intravenous contrast	4	
Nuclear Medicine		
White blood cell (Tc or In)	6	
Gallium	4	Gallium is a more useful radionuclide agent in patients with AIDS.
Radiography		
Plain films	6	

Upper gastrointestinal - small bowel follow through	4	
Barium enema	4	
Ultrasound	5	
Magnetic Resonance		
Magnetic resonance imaging without contrast	2	
Magnetic resonance imaging with contrast	2	
Interventional		
Angiography	2	
<p style="text-align: center;"><u>Appropriateness Criteria Scale</u></p> <p style="text-align: center;">1 2 3 4 5 6 7 8 9</p> <p style="text-align: center;">1=Least appropriate 9=Most appropriate</p>		

Variant 4: Patient presenting with fever, nonlocalizing abdominal pain and no recent operation.

Radiologic Exam Procedure	Appropriateness Rating	Comments
Computed Tomography		
Computed tomography with intravenous contrast	8	
Computed tomography without intravenous contrast	5	If contrast contraindicated, computed tomography may still be of value.
Ultrasound	6	
Radiography		
Plain films	6	
Upper gastrointestinal - small bowel follow through	4	
Barium enema	4	
Nuclear Medicine		

White blood cell (Tc or In)	6	
Gallium	4	
Magnetic Resonance		
Magnetic resonance imaging without contrast	2	
Magnetic resonance imaging with contrast	2	
Interventional		
Angiography	2	
<p style="text-align: center;"><u>Appropriateness Criteria Scale</u></p> <p style="text-align: center;">1 2 3 4 5 6 7 8 9</p> <p style="text-align: center;">1=Least appropriate 9=Most appropriate</p>		

Excerpted by the National Guideline Clearinghouse

Summary

Imaging studies that have been used to detect abdominal abscesses include plain films (supine and upright, and occasionally decubitus views); nuclear medicine studies such as gallium, indium, or technetium tagged leukocytes studies; ultrasound; computed tomography; and more recently magnetic resonance imaging. Unfortunately, much of the literature for plain film radiography, gallium and indium leukocytes scintigraphy, and computed tomography scanning is more than a decade old. The current literature has recently focused on computed tomography's ability to percutaneously drain abdominal abscesses. The implication is that computed tomography scan is already the primary means of making the diagnosis of abdominal abscess.

Computed tomography scanning has been shown to be the first and best test for the diagnosis of intra-abdominal abscess in patients who have recently had abdominal surgery, and in patients with localizing signs for abscess. The computed tomography scan can be very helpful in determining whether a patient with pancreatitis has developed a pancreatic abscess and can occasionally be useful in detecting abscess formation in patients with diverticulitis or Crohn's disease. However, the sensitivity of detecting abscesses in this latter group of patients is reduced compared with the other categories mentioned above. Although computed tomography scans can be quite accurate in detecting abnormalities of the psoas, the differentiation of psoas abscesses from other psoas lesions is difficult when only imaging criteria are used.

Ultrasound is often useful in specific cases, but when compared with computed tomography scanning, the results are usually of lower sensitivity and specificity. This is especially true in bacterial infections of the kidney. Gallium scanning and

indium and technetium leukocyte scanning are often useful when computed tomography scan is negative or equivocal. Nuclear scintigraphy affords the possibility of whole-body imaging and the detection of sites of infection beyond the abdominal region. The more recent literature on technetium-labeled leukocytes suggests a very high sensitivity and specificity for abdominal abscesses as well, although there are no adequate recent comparisons with computed tomography. Gallium is excreted in the gastrointestinal tract, making it a poor choice for imaging abdominal abscesses. One recent study suggests that magnetic resonance imaging is an accurate examination for detecting abdominal abscesses.

There is little current information on plain film radiography's role in detecting abdominal abscesses. Some reports suggest that plain radiographs may be useful, but this is far from proven.

Patients without previous surgery or with a low clinical suspicion of abscess are effectively evaluated with computed tomography, and may also be studied with indium- or technetium-labeled leukocytes to search for infection or inflammation.

CLINICAL ALGORITHM(S)

Algorithms were not developed from criteria guidelines.

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on analysis of the current literature and expert panel consensus.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Selection of appropriate radiologic imaging procedures for evaluation of patients suspected of having an abdominal abscess

POTENTIAL HARMS

None identified

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

An American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment.

Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those exams generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Saini S, Ralls PW, Balfe DM, Bree RL, DiSantis DJ, Glick SN, Levine MS, Megibow AJ, Shuman WP, Greene FL, Laine LA, Lillemoe K, Brown M, Berland L. Suspected abdominal abscess. American College of Radiology. ACR Appropriateness Criteria. Radiology 2000 Jun;215(Suppl):173-9. [21 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

1996 (revised 1999)

GUIDELINE DEVELOPER(S)

American College of Radiology - Medical Specialty Society

SOURCE(S) OF FUNDING

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria.™

GUIDELINE COMMITTEE

ACR Appropriateness Criteria™ Committee, Expert Panel on Gastrointestinal Imaging.

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Names of Panel Members: Sanjay Saini, MD; Philip W. Ralls, MD; Dennis M. Balfe, MD; Robert L. Bree, MD; David J. DiSantis, MD; Seth N. Glick, MD; Marc S. Levine, MD; Alec J. Megibow, MD, MPH; William P. Shuman, MD; Frederick Leslie Greene, MD; Loren A. Laine, MD; Keith Lillemoe, MD; Manuel Brown, MD; Lincoln Berland, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline. It is a revision of a previously issued version (Appropriateness criteria for suspected abdominal abscess. Reston [VA]: American College of Radiology (ACR); 1996. 7 p. [ACR Appropriateness Criteria™]).

The ACR Appropriateness Criteria™ are reviewed after five years, if not sooner, depending upon introduction of new and highly significant scientific evidence. The next review date for this topic is 2004.

GUIDELINE AVAILABILITY

Electronic copies: Available from the [American College of Radiology \(ACR\) Web site](#).

Print copies: Available from ACR, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on March 19, 2001. The information was verified by the guideline developer on March 29, 2001.

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